

CLAIMS

We Claim:

1. Computer readable media having encoded thereon a data structure
5 representing a visual style to be applied to one or more object instances of a lookless user interface element for rendering the user interface element according to the visual style, the data structure comprising:
 - a visual tree comprising a hierarchy of one or more sub-elements of the user interface element to be used by user interface services for composing and rendering the 10 user interface element; and
 - one or more bindings between visual properties of the user interface element and corresponding properties of its sub-elements, wherein the sub-elements consume values associated with bound properties of the user interface element for rendering the user interface element according to the visual style.
- 15 2. The computer readable media of claim 1, wherein each of the one or more bindings are between a single visual property of a user interface element to a single corresponding visual property of a sub-element.
- 20 3. The computer readable media of claim 1, wherein each of the bindings are expressed in a declarative statement.
- 25 4. The computer readable media of claim 3, wherein the declarative statement comprises a target property associated with the UI element and a source property associated with a corresponding one of the sub-elements.

5. The computer readable media of claim 4, wherein a syntax for the declarative statement indicative of the binding comprises SourceProperty= “*Alias (Target=Property)”.

5 6. The computer readable media of claim 1, wherein the data structure further comprises one or more visual properties of the user interface element with values corresponding to one or more named resources.

10 7. The computer readable media of claim 6, wherein the one or more of the named resources is a named style.

8. The computer readable media of claim 1, wherein the data structure further comprises at least one visual property of at least one of the sub-elements with values corresponding to one or more named resources.

15 9. The computer readable media of claim 8, wherein one or more of the named resources is a named style.

20 10. The computer readable media of claim 1, further comprising a command instruction for driving changes in the visual aspects of the user interface element via changes to the functional aspects of the sub-elements.

25 11. The computer readable media of claim 10, wherein the command instruction is associated with an indicator that is indicative of one or more of the changes to functional aspects of the sub-elements that may be caused by user interaction.

12. The computer readable media of claim 1, further comprising a command instruction for causing a change in the visual properties of the UI element due to an event causing a change in the functional aspects of one of the sub-elements.

5 13. In a computer system operating according to an operating system comprising a user interface service, a method of applying a visual style for rendering a user interface element on a display according to the visual style, the method comprising:
determining which one of one or more visual styles related to a type of the user interface element is to be applied to the user interface;
10 retrieving one or more style documents describing the determined visual style; wherein the one or more style documents comprise a description of a visual tree including one or more sub-elements of the user interface element; and
using the visual tree description to generate instances of the sub-elements of the user interface element and selectively binding visual properties of the sub-elements to
15 consume corresponding properties of the user interface element for rendering the user interface element according to the determined visual style.

14. The method of claim 13, wherein the determining which one of the one or more styles to apply is based on a type of the user interface element.

20 15. The method of claim 13, wherein the determining which one of the one or more styles to apply is based on a name related to a visual style assigned by name to the user interface element.

25 16. The method of claim 13, wherein the determining which one of the one or more styles to apply results in a default style being applied.

17. The method of claim 13, further comprising parsing the one or more style documents related to the determined visual style for named resources corresponding to visual style properties for rendering the user interface according to visual property values specified by the named resources.

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18. The method of claim 17, wherein the named resources are defined in a document independent of the one or more style documents related to the visual style.

19. The method of claim 17, wherein one or more of the named resources is 10 a named style associated with another one of a type of user interface element.

20. The method of claim 13, further comprising using command instructions included in the one or more style documents for driving changes in properties of the user interface element.

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21. The method of claim 20, wherein the command instructions are executed upon a change in functional aspects of the one or more sub-elements of the user interface element.

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22. The method of claim 20, wherein the properties to be changed are consumed by another one of the sub-elements according to a binding indicated in the determined visual style document.

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23. In a computer system having an operating system platform, a user interface framework system for rendering a user interface element composed of sub-elements according to a visual style defined for the user interface element type, the system comprising:

a lookless definition of the user interface element;

a style library for holding one or more visual style documents to be selectively applied to the lookless user interface element for rendering the initially lookless user interface element;

5 a style engine for resolving which of the one or more visual style documents is selected to be applied to the user interface element; and

a user interface element factory for creating instances of sub-elements for composing the user interface element according to the selected visual style document for rendering.

10 24. The system of claim 23, wherein the user interface element factory instantiates sub-elements according to the selected visual style document comprising a description of a visual tree of the sub-elements used for composing the user interface element.

15 25. The system of claim 23, wherein the selected visual style document comprises bindings between the user interface element and its sub-elements and the user interface framework system is operative for exposing selected visual properties of the sub-elements as visual properties of the user interface element itself according to the bindings.

20 26. The system of claim 25, being further operative for enabling the sub-elements to consume values of their visual properties correspondingly associated with the visual properties of the user interface element according to the bindings.

25 27. The system of claim 23, wherein the selected visual style document comprises at least one specification of one or more visual properties having values corresponding to one or more named resources and the user interface framework system is operable for rendering the user interface element according to the specification.

28. The system of claim 27, wherein the one or more named resource is a named style.

5 29. The system of claim 27, wherein the one or more named resources are defined independently of the selected visual style document.

10 30. The system of claim 23, wherein the selected visual style document comprises one or more command instructions and the user interface framework system is operable for causing changes in properties of the user interface element according to changes in functional aspects of the sub-elements as indicated by the command instructions.